SEISMOLOGICAL DISPATCHES.[1]

El Centro, Cal., April 30, 1918.
An earthquake shock, lasting 30 seconds, was felt here at 9:35 o'clock to-night. Doors and windows rattled. Damage slight. (Assoc. Pr.)

Phoenix, Ariz., April 30, 1918.
Yuma, Ariz, felt an earthquake shock which lasted for a few seconds, at 9:33 o'clock to-night. No damage. (Assoc. Pr.)

Calexico, Cal., April 30, 1918.
An earthquake shock was felt here shortly after 9 o'clock to-night. Plate glass windows were broken. No further damage was done. (Assoc. Pr.)

Los Angeles, Cal., May 1, 1918.
A single earth tremor felt throughout the Imperial Valley in southern California and western Arizona at 9:32 last night caused only slight damage at various points which had reported early to-day. The shock appeared to have been most severe at El Centro. Reports from San Jacinto and Hemet indicate that the shocks were not felt there. At Calexico, plate glass windows were broken. (Assoc. Pr.)

Santiago, Chile, May 21, 1918.
The earthquake yesterday at La Serena, capital of the Province of Coquimbo, damaged a large number of buildings. Fire started in the center of the town, causing further loss. The shock was felt, to a less extent, in the neighboring villages. (Associ Pr.)

Valparaiso, Chile, May 21, 1918.
It is reported that there was loss of life in the earthquake yesterday at Serena. (Assoc. Pr.)

Santa Fe, N. Mex., May 28, 1918.
An earthquake shock was felt in Santa Fe at 5:30 o'clock this morning and was heavy enough to shake plaster off the walls of houses. No serious damage has been reported. (Assoc. Pr.)

[1] Reported by the organization indicated and collected by the seismological station at Georgetown University, Washington, D. C.

PROPAGATION OF EARTHQUAKE WAVES THROUGH THE EARTH.

Dr. C. G. KNOTT.

(*Abstract* of paper before Royal Society of Edinburgh, Jan. 14, 1918.)

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When a large earthquake occurs at any part of the earth elastic waves are sent out in all directions through the earth, emerging at the surface as disturbances which can be recorded on delicate seismometers. Up to about 120° from the epicentre, the times at which these variations emerge after the time of occurrence of the earthquake were first tabulated by J. Milne. The increasing number of observations and the improvement of the instruments have led to the tabulation of more accurate data than was possible in the earlier days. Following up certain calculations made in 1908, Dr. Knott, using these more recent data, has made fresh calculations of the velocities of the seismic waves through the earth by a mathematical method based on the theory of integral equations and entirely free from assumptions. As has long been recognized, two types of wave are transmitted through the body of the earth known as the primary (P) and the secondary (S) waves. The broad results of the investigation may be stated thus: The velocity of the P wave increases steadily with depth from 4.46 miles (7.18 kilometers) per second at the surface to 6.2 miles (10 km.), per second at a depth of 400 miles (650 km.), continuously increasing at a slightly smaller rate of increase until it reaches 7.95 miles (12.8 km.) per second at a depth of 1,000 miles (1,600 km.), after which, at greater depths, the speed of propagation remains constant. The S wave travels more slowly than the P wave, but changes in very much the same way, the values of the speed being 2.47 miles (3.98 km.) per second at the surface, 3.43 miles (5.53 km.) at a depth of 400 miles, and 4.25 miles (6.84 km.) at depths greater than 1,000 miles.